

The ABCs of performing highly effective think-alouds

Effective think-alouds can build students' comprehension, decoding, vocabulary, and fluency.

This is an exciting time to be an educator. We now know more about effective literacy instruction than at any other period in history (Block, 2004). Within the last 10 years, national panels in the United States have completed a greater number of reports about reading methodology than have been produced in any prior decade (Adams, 1991; National Commission on Teaching and America's Future, 1998; National Institute of Child Health and Human Development, 2000a, 2000b; Snow, Burns, & Griffin, 1998, 1999; Sweet & Snow, 2002).

We have learned that highly skilled readers use similar thought processes before, during, and after reading. They (a) adjust a reading goal according to their level of prior knowledge, (b) think strategically, (c) follow their intentions to the end of a passage, (d) monitor their comprehension, and (e) reflect on an author's purpose within the constraints of a particular genre and their own reading objective (Block, 2004; Block & Pressley, 2002; Israel, 2002; Pressley & Afflerbach, 1995). Recent research reports and panel syntheses agree that all readers should use these expert thinking processes. Many less able readers, however, will not do so unless their teachers become proficient in demonstrating these thinking processes (Israel, 2002; Pressley & Afflerbach, 1995). To accomplish this goal, educators have asked for more information about how to perform effective think-alouds (Baumann, Jones, & Seifert-Kessell, 1993; Block, 2004; Block & Pressley, 2002; Duffy, 2003; Israel, 2002; Oster, 2001).

A think-aloud is a "metacognitive technique or strategy in which a teacher verbalizes thoughts aloud while reading a selection orally, thus modeling the process of comprehension" (Harris & Hodges, 1995, p. 256). Think-alouds enable readers to stop periodically, reflect on the thinking they do to understand a text, and relate these literacy processes orally. Teachers use this technique as an instructional practice to help students verbalize the thoughts they use during reading, and thus bring that thinking into the open so that they can replicate it more effectively in the future (Oster, 2001). This metacognitive awareness significantly increases students' scores on comprehension tests, adds to students' self-assessment of their comprehension, and enhances students' abilities to select thinking processes to overcome comprehension challenges while they read (Block, 2004; Oster, 2001).

As an instructional practice, think-alouds differ from prompting, modeling, or giving directions. Think-alouds enable teachers to demonstrate for their students how to select an appropriate comprehension process at a specific point in a particular text. Highly effective think-alouds also describe why a specific thought process would be effective in overcoming that confusion or reading difficulty. Thus, performing effective think-alouds has proven to be a successful practice by which teachers can explain how expert readers elicit comprehension processes separately and collectively (Block, 2004).

Teachers want to boost their abilities to perform effective think-alouds, and students have also expressed a need to understand their teachers' thinking during reading. In a recent study, 630 second through sixth graders were surveyed to determine what their teachers could do to help them comprehend (Block, 2004). The most frequent

response was that students wanted their teachers to explain reading processes better. They wanted teachers to (a) describe what they did to understand the “things that occurred in books,” (b) show how they knew which meanings went with which words, and (c) explain “just about everything that they did in their minds to comprehend” (Block, 2004).

Another study documented that these needs were greater for English-language learners and struggling readers (García, 2002). These students wanted their teachers to deliver very specific think-alouds about the following strategies: how to confirm or disconfirm what they understood, decode, infer, use prior knowledge, notice novelty, paraphrase, predict, question, read ahead, reread, restate, summarize, understand the structure of a text, use context clues, make visual images, and learn new vocabulary words.

This article describes the benefits and methods of teaching comprehension through highly effective think-alouds; how think-alouds assist students to engage their own comprehension processes; and how think-alouds can become a valuable assessment tool in classrooms, after-school programs, and tutorial sessions. One of the reasons teachers do not teach through think-alouds is because they feel it is difficult to do; for that reason this article supplies several examples for teachers’ use in kindergarten through middle school.

How to perform highly effective think-alouds

Effective think-alouds explain what expert readers do before, during, and after they read a large section of text. In a recent study involving 1,200 kindergarten through fifth-grade students in the southwestern United States, the 12 think-alouds described in this article and the instructional activities that accompany them significantly increased the students’ reading vocabulary, comprehension, and fluency on standardized tests (Block, 2004). Five of the examples in this article demonstrate what expert readers think as they begin to read, four of the examples portray the thoughts activated while reading, and three of them demonstrate processes good comprehenders use after reading a large section of text.

What expert readers think as they begin to read

The initial thinking processes of expert readers are depicted in Figure 1 and designated by the numeral 1 in the upper left corner of the flashcards on this figure.













Overview the Text. Expert readers’ first thoughts are about how to select a good book and how to activate prior knowledge about that text’s topic. The teacher can perform an Overview the Text think-aloud in two steps.

Step 1: How to select an enjoyable book—In the first step, teachers choose a book that they enjoyed personally and then describe to students what attracted them to it, how they knew they would like the topic, and how many books they have read on that subject or by that author. They also explain the qualities in this author’s writing style, such as the density of ideas, number of details, length of paragraphs, or depth of vocabulary, that made this book memorable. Once these descriptions are completed, they repeat this think-aloud by using a book that the class is about to read silently. Teachers hold up that book and say,

When choosing a book, think about how much you want to learn about a topic. You can choose a basic, easier book if you do not know very much about a subject and a more detailed book if you know a great deal about it. Next, read the title and author to see if you have enjoyed reading books by that author or about that subject. Skim the book to see if it contains so many difficult words that you might not enjoy reading it. Also, determine if it contains too many pictures and little information that you don’t already know. After skimming the book to make these decisions, look at the table of contents, index, and chapter headings. Decide if you want to read about the topics covered in the book. After thinking in this way for several practice sessions, you are likely to develop the ability to Overview the Text every time you choose a book. When you do, you will select books that bring you greater enjoyment.

Step 2: How to begin thinking about a book’s topic—In the second step, teachers explain to students that when they begin a book they should think about the purpose and main ideas in it and pay particular attention to all details in the first few pages. Note that these pieces of information are used to decide if students want to continue reading

FIGURE 1
Flashcards to enhance students' use of think-aloud strategies

1  Overview the Text	1  Look for Important Information	1  Connect to an Author's Big Idea
1  Activate Relevant Knowledge	1  Put Myself in the Book	2  Revise Prior Knowledge and Predict
2  Recognize an Author's Writing Style	2  Determine Word Meanings	2  Ask Questions
3  Notice Novelty in Text	3  Related the Book to My Life	3  Anticipate Use of Knowledge

Note. 1 = think-alouds that begin before and as one reads the first few pages, 2 = think-alouds that occur after one has read the first few pages, and 3 = think-alouds that occur after a large amount of text has been read.

that book. Students should also identify the direction that the author's train of thought will take during the first few pages so they can align their thinking on that same path. After these opening explanatory statements have been made, step 2 of the Overview the Text think-aloud should be performed. Teachers should hold up a book and say,

When I begin to read a fiction book, I read the first few paragraphs carefully so that I can understand the set-

ting, plot, and characters. When I begin a nonfiction book I read the first few pages to put details together, identify if the author puts his or her main ideas as the first or last sentence of paragraphs, and find out what kinds of details this writer uses to describe a main point. By thinking these thoughts, I can more quickly follow the author's train of thought.

Afterward, read the first few paragraphs from a nonfiction book. Perform the second step of the

Overview the Text think-aloud by describing how you identified which sentences were main idea statements and what kinds of details the author used. Tell students that most authors put the most important or main idea statement either as the first or last sentence in a paragraph. If it is the first sentence, it usually introduces the topic of that paragraph and all remaining sentences describe something about that topic. If it is the last sentence, it usually ties all details in the prior sentences together and is a more general summary statement.

Finally, inform students that detail statements describe how, why, when, where, or what something is. Tell students that most books rely on only one type of detail statement to carry the plot or sequence of ideas forward. By reading the first few paragraphs of most books, students can determine which type of detail statement will be used in that particular book. This knowledge will increase students' comprehension because they can more rapidly identify the type of detail that will reappear in a book. They can also predict more reliably how main ideas and detail sentences will be connected and what meaning will be imparted in upcoming detail sentences.

For example, in the book *Let's Investigate Tree Frogs* (Weir, 2002) the first sentence in the first paragraph is the main idea because it introduces the big topic that is to be discussed: "Frogs are some of nature's most fascinating creatures" (p. 1). The next four ideas tell what makes these creatures fascinating—what the total number of species is, what makes 450 of these species special, and what "hylidae" means (skilled climbers that spend most of their time living high in trees). No other type of detail appears in the first paragraph. Throughout the book, Weir follows this same pattern of stating the main idea first and then using three to five "what" detail statements to conclude each paragraph.

Repeat the second step of the Overview the Text think-aloud with a different book on the same topic to demonstrate how to begin thinking about the topic and discussing the author's train of thought within the first few pages. Discuss how authorial patterns differ even in writing about the same subject. For a third demonstration, select a fictional text and describe the words that helped you recognize important details about the setting, plot, and characters. Then, as a class, ask students

to describe these same thought processes as they read the opening pages of a nonfiction and then a fiction book. Finally, have students read silently alone. As you move from desk to desk, ask individuals to perform an Overview the Text think-aloud using their books.

Look for Important Information. Expert readers know how to allocate greater attention to important sentences, and they know how to avoid distraction from their reading goals by not paying attention to minor details (Israel, 2002; Pressley & Afflerbach, 1995). To perform the Look for Important Information think-aloud, hold up a book, preferably a content area textbook, and turn to a chapter that students have not yet read. Then say,

At the beginning of a chapter or book, the author gives clues to help you find the most important information. The author repeats certain words and restates some ideas more frequently than others. Another clue is that the most important idea is often followed by a sentence that gives an example or contains the words *for example*, *to illustrate*, or *let me describe this to you*. Also, when you identify where an author places the main ideas in paragraphs, you can find the most important points more quickly. For instance, in this book the author's most important points appear here in her paragraphs (point to a sentence containing a key idea and describe how you knew it was important).

Ask students to follow along as you read the next paragraph. Have them identify clues that point out the most important sentence in that paragraph. Continue asking students to perform the Look for Important Information think-aloud until most class members can do so independently. Finally, monitor students individually as they read silently or during one-on-one meetings.

Connect to an Author's Big Idea. Expert readers connect ideas in a chapter or section of a book to a central theme. To perform this think-aloud, tell children how you link main idea sentences to the big idea that an author is addressing. For example, say,

When I have read two pages of a book, I pause to ask myself where I think the author is going. In this way I begin to feel that I am on the same train of thought as the author. Then, I turn to the next page and see if I was correct in identifying what was important to the author. I continue reading. I relate the things I read to the big

idea, moral, or theme that the author is conveying. Usually, after I have read three or four pages, I can figure out why the author wrote this particular book. The way I figure out the author's big idea is by seeing how all main ideas in each paragraph connect together. For example, the main idea in one paragraph may connect to the next paragraph. If I'm reading nonfiction, another way I Connect to an Author's Big Idea is to keep the title of the book in mind as I read. The title of nonfictional books usually names the author's big idea.

For example, Mr. Lopez (all names are pseudonyms), a fourth-grade teacher, gave a Connect to an Author's Big Idea think-aloud after reading the title and first few paragraphs from a chapter in *Gandhi* (Demi, 2001). The chapter title from which his think-aloud came was "Gandhi's Childhood Prepared Him for Greatness" (p. 4). Mr. Lopez told students that he was keeping this title in mind as he read. After reciting the following sentences, he stopped reading. "[Gandhi's] father was a prime minister in the prince's court. His mother was a devout woman who taught her children about their religion, Jainism." Pausing to perform a Connect to an Author's Big Idea think-aloud, Mr. Lopez said,

Gandhi's father is a prime minister in the prince's court, so that means he's a very important leader. Gandhi likely observed how his father made important decisions and implemented big plans. This helps me understand why Gandhi became influential. Gandhi was born into an important family and lived with parents that mentored him. I add all of these facts together and think about the chapter's title. All of these thoughts lead me to conclude that Gandhi became influential partly because his parents taught him how to accomplish big objectives. Because all main ideas in the paragraphs in this chapter tie together in this way, I know that this is the author's big idea in this chapter. (Israel, 2002, p. 67)

Activate Relevant Knowledge. Expert readers activate relevant background experiences and eliminate naive, inaccurate, or irrelevant prior knowledge. Teachers begin this think-aloud by stopping students after the class has read the first four pages of a text. To illustrate, Ms. Morganston, a first-grade teacher, said,

After reading the first few pages in any book, you can continue to read carefully and think about experiences you have had that are very similar to the experiences in the book. Or, you can let your mind wander rather than to concentrate on the words in the book. Good readers

follow along with the words in the book, pausing briefly to recall background knowledge or identical experiences they have had in their lives. Let me show you how I Activate Relevant Knowledge as we continue to read the next page in this book.

Using an overhead transparency of a single page of text, Ms. Morganston points to specific sentences in which she connects relevant prior knowledge. Ms. Morganston demonstrates how she activates her similar personal experiences and how she eliminates inaccurate prior knowledge. Finally, she reads a sentence and describes an event from her personal experiences that contributed knowledge to that statement. For example, if you were reading a story of "The Three Little Pigs" and it read, "Once upon a time, there were three little pigs," you could perform an Activate Relevant Knowledge think-aloud by saying,

I really can picture these three little pigs in my mind because I went to a state fair and saw three pigs that looked just like the ones described in this sentence. I can remember exactly how they smelled, felt, and sounded. Now, I am ready to understand the next sentence about these three little pigs. I have activated my prior knowledge, and it will assist me in understanding the most important points in the next sentence.

Then read the next sentence in the book—"The three little pigs lived in a forest"—and say,

As I was reading, if I started thinking about the last time I went on a picnic in the forest, my mind would have been distracted by a minor detail ("in a forest") and wandered away from the words in the book. I would not be attending to what the author said because the picture in my mind would not contain three pigs. Also, I should not think about a picnic because the author did not say that the pigs went on a picnic. By eliminating these thoughts, I can return to the words in the book and more accurately understand how the next sentence adds to the fact that the pigs lived in a forest. Returning to think about the exact words in the book, I can concentrate on what the author is going to say next about the pigs' lives.

Ask the class to practice and discuss activating relevant knowledge. Then have each student perform the think-aloud with you in a one-to-one conference.

Put Myself in the Book. Tell students they can "put themselves in a book" by pretending that they

are the main character. For example, Ms. Montalvo, a third-grade teacher, read the following section aloud from *The Bears of Hemlock Mountain* (Boon, 2002).

"I know!" she said to Jonathan, as he brought in an armful of wood, "your Aunt Emma, over across Hemlock Mountain, has the biggest iron pot you have ever laid eyes on."

"I never laid eyes on it," said Jonathan. (p. 24)

Ms. Montalvo stopped reading and told her students that she was putting herself in the book in the following way:

As I'm reading, I can see Jonathan and his mom in my mind. This reminds me of how I talk to my daughter. I think Jonathan's mom is telling him about the pot because she is going to send him over to get it. But as soon as Jonathan hears her say "Hemlock Mountain," he says he's never seen the pot because he is hoping that his mother will not make him get it if he places a doubt in her mind that it may not be there. He is afraid to cross over this frightening mountain. My daughter sometimes tries to keep me from asking her to do things, too. By doing the Put Myself in the Book think-aloud, I could put myself in the place of Jonathan's mother and it gave me a new idea. I thought of a better way to help my daughter overcome her fears. In the future, I'm going to...."

What expert readers think while they read

Four think-alouds reveal the thoughts that expert readers have after they have completed the first five or six pages of a book (Block & Pressley, 2002). These think-alouds are depicted in Figure 1 and designated by the numeral 2 in the upper left-hand corners.

Revise Prior Knowledge and Predict. Expert readers revise their understanding and predict as they read (Morrow, Gambrell, & Pressley, 2003). To explain how to make accurate predictions, pause to describe what textual features prompted you to make a prediction. A few lines later, deliver another Revise Prior Knowledge and Predict think-aloud. Over the course of a few weeks, ask students to practice adding to, or changing, what they think to make predictions. Teach them how to ask themselves questions like the following to make predictions while they read:

- What clues did the author give me?

- What did I already know that helped me to make a correct prediction?
- What did I miss that caused my prediction to be wrong?

Recognize an Author's Writing Style. Once students can make general predictions, the next goal is to help them infer the topic that is likely to occur in an upcoming sentence, paragraph, or chapter. Expert readers analyze when and how authors introduce ideas. They do so by analyzing the depth of an author's vocabulary, the complexity of ideas in individual sentences, the length of paragraphs, the frequency with which big ideas appear, and how an author connects sentences and paragraphs. Figure 2 describes five thought processes that comprise the Recognize an Author's Writing Style think-aloud. It can be displayed as an overhead transparency or replicated on a chart so students can reference it for several weeks until these thought processes become automatic for them. Each step in Figure 2 should be taught in a separate lesson.

To introduce each step of this think-aloud, demonstrate the differences that occur in two author's writing styles by showing how you recognized each step using two books, by different authors, on the same topic. The examples in Figure 2 are the think-alouds that Ms. Lindsay delivered to her second graders using the nonfictional text *Let's Investigate Tree Frogs* (Weir, 2002). She contrasted this book with *Frogs* (Boon, 2003).

Once students have mastered these thought processes, the Recognize an Author's Writing Style think-aloud can be used to increase students' abilities to make accurate inferences about what the subject of an upcoming sentence is likely to be. For instance, the steps in Figure 2 can be taught in different orders or combined in different ways to demonstrate contrasts in textual features of two books about the same topic. Before teachers start this think-aloud, they should identify how many pages in the book need to be read before students have enough information to determine if the vocabulary is at a level they will enjoy, if the length of paragraphs makes comprehension stress-free, and if the depth of ideas is enjoyable. Teachers should stop after reading that number of pages in the text and perform the Recognize an Author's Writing Style think-aloud. The next time this lesson is conducted, teachers should stop at this same point in a

FIGURE 2
Steps in the Recognize an Author's Writing Style think-aloud

Step 1: Recognizing the depth of vocabulary that an author uses. This think-aloud demonstrates how students can determine the frequency with which technical terms or unknown words are introduced. By determining the rate at which these words appear, readers can more often select books with the depth of vocabulary that can extend their knowledge without undue frustration. Authors can use a dense level of vocabulary, with new words introduced in every paragraph; a moderate number of new vocabulary words, with one introduced every few paragraphs; or a low level of new vocabulary terms, with only a few words being introduced every few pages. For example, Ms. Lindsay taught students how to make this distinction by contrasting the number of new words introduced on the first two pages of *Let's Investigate Frogs* (Weir, 2002) with those that were introduced on the same number of pages in *Frogs* (Boon, 2003). As she read, she asked her third graders to raise their hands when she came to a word that they did not know. When she read *Let's Investigate Frogs*, students did not know 25 words. When she read *Frogs*, students did not know 4 words. Based on this analysis, students concluded that they wanted to read *Frogs* first so that they could learn more words relative to that topic before they read *Let's Investigate Frogs*.

Step 2: Recognizing the complexity of sentences that an author uses. Authors can write with complex sentences, compound sentences, or simple sentences. To demonstrate this step in the think-aloud, teachers read several sentences and then perform a Recognize an Author's Writing Style think-aloud to describe how they recognized the type of sentence that a particular author uses predominantly. Then, these teachers tell if this author's sentence style appeals to them and why. For instance, Ms. Lindsay demonstrated that author Kevin Boon preferred simple sentences; Diana Weir preferred complex sentences. Her students deduced that this was another reason why *Let's Investigate Frogs* was the more challenging book to read.

Step 3: Recognizing the length of paragraphs that an author uses. Students should be taught to recognize the length of paragraph that they most enjoy reading. Teachers can demonstrate how to skim a book to determine the average paragraph length that an author uses. For instance, Ms. Lindsay used this step in the Recognize an Author's Writing Style think-aloud to show students how to select the books about frogs that they wanted her to read aloud. She held up six books and allowed the class to skim a few pages in each one. Afterward, they selected *Let's Investigate Frogs* and *Frogs* because both Weir and Boon wrote paragraphs of average length (five to eight sentences in each paragraph). The class already knew a lot about frogs, so they rejected basic books that contained only one to four sentences per paragraph. They did not know enough about frogs yet to read books with paragraphs of nine or more sentences.

Step 4: Recognizing the frequency with which big ideas are introduced. Students are taught to be aware of how many paragraphs are used to describe the same big idea. In the frog books, authors Weir and Boon both change to a new big idea with each new paragraph. With this finding, students concluded that they would learn a new big idea each time they read an indented sentence. This knowledge increased their comprehension. When two to four paragraphs are used for each big idea, the author is writing at a medium level of idea density, and when a big idea is described using more than five paragraphs, the author is writing at high level of idea density.

Step 5: Recognizing how sentences and paragraphs are connected. Students are taught how authors move ideas in a book forward or how they move from one big idea to another. Some authors write a summary or concluding paragraph to end one big idea before they move to a new one. Other authors move from one subtopic to another without a summary or rely on sequence words such as *first*, *second*, and *last* to signal relationships between paragraphs. Teachers can demonstrate these differences through think-alouds that compare the connections between paragraphs of several books on the same topic. For instance, by reading the first few pages of the frog books, Ms. Lindsay showed that Diana Weir connected paragraphs by writing subheadings to introduce a new big idea and that Kevin Boon used signal words to connect each big idea to the next one. Because of this, when students read the remaining pages, they paid close attention to subheadings and signal words respectively. As a result, they more fully comprehended both books.

different book. Finally, ask each student to select a favorite book from the classroom library and perform a Recognize an Author's Writing Style think-aloud in small groups.

The following is an example of how to perform the Recognize an Author's Writing Style think-aloud. Say to your class,

We have learned a lot about the depth of vocabulary and types of sentences this author uses, so let's put all this information together to predict what the next paragraph will be about. Look at the number of paragraphs this author has spent describing the same topic. Use how often this author has changed topics from one paragraph to the next in this chapter as a clue to how often he is likely to change from one topic to

another in upcoming paragraphs for the rest of this book. Do you think the next paragraph will begin a new topic or continue to talk about this one? Tell me the thinking you did to come up with your answer.

Determine Word Meanings. Expert readers use several decoding strategies to infer unknown words and learn new vocabulary terms. The Determine Word Meanings think-aloud describes each of the decoding processes that students can use to unlock the meaning of unknown words. Each of these decoding processes is taught through separate Determine Word Meanings think-alouds. The following is an example of a Determine Word Meanings think-aloud that describes how to use structural analysis and context clues to decode. It was delivered by Ms. Ricardo, a special education teacher.

Before we begin reading, I want to tell you what I think when I come to a word that I don't know. For example, I'm going to tell you what I would think about if I didn't know this word (pointing to the word *immediately*) in the sentence "Whenever people think of the legends of knights in shining armor, one name immediately springs to mind—King Arthur." The word I don't know is a long word so I look at its parts. By doing this, I see that it ends in *ly*. This tells me that it could be an adverb. I know adverbs tell how or when things happen. I also use another clue—the context of all the other meanings in the sentence. As I read, I put all of this information together and think about how or when something could "spring to mind." The verb *springs* suggests that something happens quickly. Now, I add all these thoughts together and ask myself "When would something spring to mind?" I think that something would spring to mind "at once." By thinking these thoughts, I can decode the meaning of this word. The word *immediately* is an adverb that means "at once."

In subsequent lessons, perform other examples of the Determine Word Meanings think-aloud to teach students how to decode

- words that contain common English phonograms (phonics),
- words that do not adhere to frequently occurring word patterns (sight words),
- words that gain meaning from syntax or semantic relationships (context clues),
- words that are long and do not frequently occur unless the content relates directly to a specific theme (content-specific words),

- unusual words (detecting accent marks and foreign derivational clues), and
- words when none of the above decoding processes unlock their meanings (e.g., how you know it is time to ask a friend or teacher for help or to look up the word in a dictionary).

Finally, perform another think-aloud to demonstrate how you used several of these decoding processes together to figure out a new word (such as using structural analysis and content clues consecutively, as was shown in the previous example).

Ask Questions. Expert readers ask themselves questions while they read. These inquiries check the validity of incoming thoughts and clarify or signal that students need to reread or read ahead. To demonstrate this think-aloud, say,

Whenever you don't understand a word or a sentence, you need to stop and ask yourselves questions. You can ask, "What is it about this sentence that I don't understand? Is it a word? Is it the way the sentence connects to the prior sentence? Is the sentence unclear? Is it a bigger idea than the one that occurred before? Is the sentence so long that I need to go back and reread, or should I read ahead to get more context clues?" Once you have asked yourself questions like these, you can find the reason for your confusion and add whatever thoughts you need to read on with understanding.

For example, Ms. Clancy, a third-grade teacher, conducted an Ask Questions think-aloud after she had read two paragraphs on page 9 from the nonfiction text *The History of Chocolate* (Roberts, 2003). She explained her thoughts and modeled this think-aloud to her class.

What did I think as I read this part? First, I stopped to think about all that I had read. I asked myself, "What did I read?" I read that Spain kept the secret of how to make chocolate but now it's not a secret, and we all can eat chocolate. Then, I asked myself, "Are there any parts that are not clear to me?" Yes. I'm not really clear how many cocoa trees there are now. Chocolate is not as expensive as it was when it was first discovered. I decided to go back and reread that part. I wanted to find out if there are more cocoa trees now and how long the Spanish kept chocolate a secret." Toni [a student] interrupted: "I know there are more trees now." Ms. Clancy asked, "How did you figure that out?" Toni replied, "I read two things earlier in the story and

put them together. It said everyone was growing chocolate trees around the world now, and it also said that chocolate is not so expensive now. If we had fewer trees today, it would be more expensive, not less." "Great," Ms. Clancy said. "Now, can we recognize this author's writing style to predict what is likely to happen next in this story?" Another student responded, "Yes. I think we're going to read about different kinds of chocolate trees because the last sentence we read told us that chocolate doesn't just come from one kind of tree, and I know that this author changes subjects each time he begins a new paragraph." (adapted from Leu & Kinzer, 1995, p. 386)

Ms. Clancy read aloud more of the book to find that the student's thinking was correct. Then she asked students to use these same thought processes as they read on in this text silently. She met with individuals and assessed their abilities to do so by asking them to pause and describe their thinking as they read.

What expert readers do after they read

The following three think-alouds demonstrate what expert readers do after they have read a large amount of text. These have proven to significantly increase students' retention and reflection (Block, 2004). Each think-aloud is depicted in Figure 1 and is designated by the numeral 3 in the upper left-hand corners of the flashcards.

Notice Novelty in Text. Expert readers reflect on an author's ideas and how they are enhanced by a writer's choice of words, genre, and individual flairs in writing styles. The Notice Novelty in Text think-aloud demonstrates how readers can use the novelties in an individual writer's style and a genre's format to flavor a printed message. To teach students to notice novelty, read two different genres about the same subject. For example, you can read a recipe for making strawberry pie and compare it to a poem about strawberry pie. In Notice Novelty in Text think-alouds, describe how you

- notice and use differences in genres' formats to comprehend subtleties of meaning;
- identify subtleties in word choices;
- contrast how the textual features in one genre communicate meaning (i.e., use the recipe book's format, details in the photographs of completed recipes, and the sequence of num-

bered steps) with the textual features in a second genre (i.e., attend to the rhyme and rhythm of the English language as portrayed in the poem "Strawberry Pie in the Making" [Boudart, 1999]);

- pretend you are telling the author the individual features in his or her writing style that you most appreciate as a reader; and
- go back to reread and develop a more complete understanding.

In a subsequent lesson, perform another Notice Novelty in Text think-aloud by asking students to pay attention to an author's individual word choices. Describe how a single word can signal subtle ideas. For instance, Mrs. Mackey used the following think-aloud to teach this concept to her fifth graders:

The characters in this book have strange names—Ms. Perfuma, Ms. Flowery, and Ms. Lilac. I know that all of these names relate to a pleasant smell. Why would the author give all characters names that relate to flowers and their pleasantness? Is he trying to communicate something about these characters' personalities? I think I should pay attention to subtleties in this author's writing style because he appears to value single words and uses them to communicate big ideas, such as character traits. (Block, 2004)

Relate the Book to My Life. Expert readers apply content from text to their lives. Teachers should demonstrate how new knowledge can be applied to one's life and describe how to reflect on what you are reading during and after completing a book. Such think-alouds include the following descriptions:

- how to summarize main sections of a text and put all summaries together to draw a final conclusion;
- how to stop and reflect to remember key points;
- how to fit pieces of information together; and
- how to apply morals, themes, and subject content to your life.

Mr. Nichols, a sixth-grade teacher, demonstrated each of the above components in a Relate the Book to My Life think-aloud for his students. When students made a statement that demonstrated

that they had applied the content to their lives, he would ask, “What processes did you use to construct that answer?” “What were you thinking as you read this section?” or “How did you summarize, reflect, or paraphrase to apply this content to your life?” (Block, 2004). If a student could not describe what he or she did, Mr. Nichols gave an example of his own.

Anticipate Use of Knowledge. Expert readers anticipate when knowledge gained from one text can be used to comprehend a new book. Ms. Washington, a colleague of Mr. Lopez, modeled the Anticipate Use of Knowledge think-aloud for her fourth graders with a different section of the Gandhi text referred to previously in this article. She said, “I’ve learned a lot about the times in which Gandhi lived. He lived during the 1860s and 1870s. I will use the information about this time, and I will think about what was happening in Gandhi’s life in 1869 as I read this new book. I know it will help me because this new book describes what was happening in England in 1869.”

How to help students perform think-alouds

Once students have learned the thinking processes described in these think-aloud strategies, assist them in initiating these processes without being prompted. The following game-like instructional lessons have proven to be effective methods of assistance (Israel, 2002).

Think-aloud flashcard games

This activity begins with a review of the thinking processes depicted on the flashcards in Figure 1. Allow students to ask any questions they have about each process. Then have each student cut the black lines on a copy of Figure 1 so that each square becomes a separate flashcard. While these cards can be used in a wide variety of game-like practice sessions, the basic think-aloud flashcard game is described next.

When you begin a book, hold up the flashcards on the top two rows of Figure 1 that have the number 1 in the upper left-hand corner. Ask students what they think when they perform each of these pictured strategies. Next, have one or two readers

perform each think-aloud as they read the first few pages of a book or chapter to the class. Then, shuffle the flashcards and pick two at random. Instruct students to read silently from the first two pages of a new book or chapter. Tell them to stop and look up when they have finished these pages and then hold up their copy of one or both the flashcard(s) that depicts the thinking they did while they read. Have a few readers recount their thoughts before the group, holding up the flashcards that represent the thoughts they had. On the next day, shuffle the next four cards in Figure 1 that have a number 2 on them and ask students to read the next two pages in their books. Then select one of the cards and ask the students to independently perform the thinking process indicated on it. Call on several students to demonstrate their thinking processes using a think-aloud.

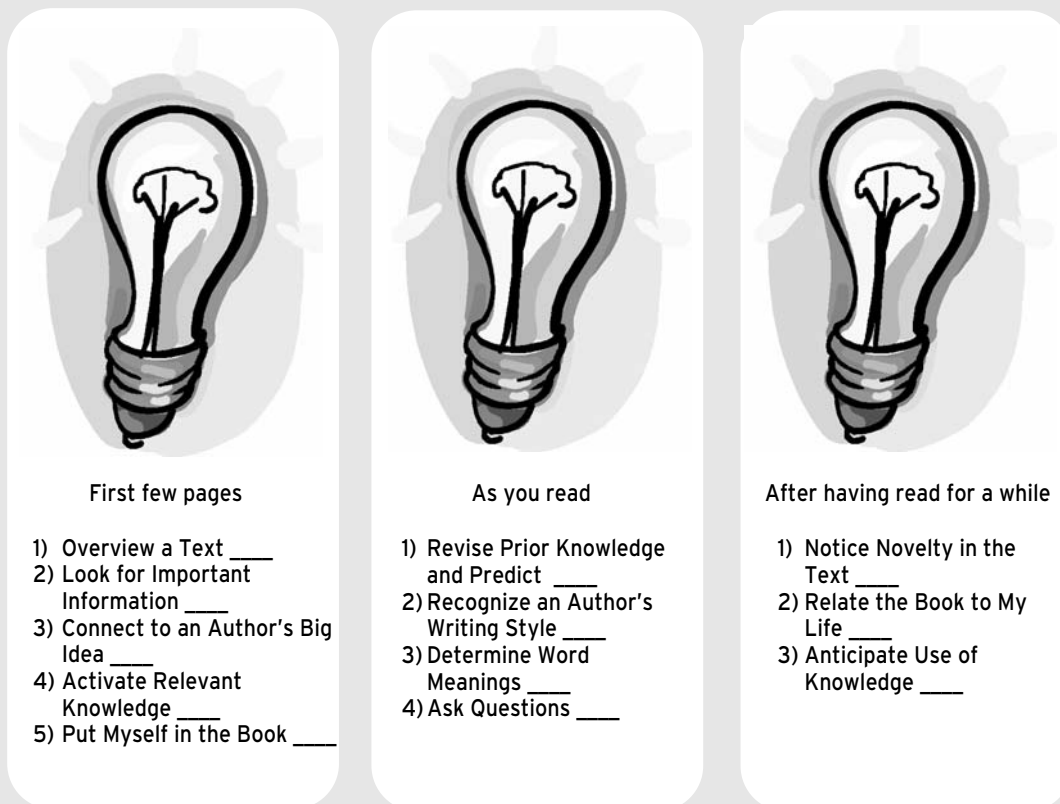
Finally, repeat this process using the flashcards with a 3 printed on them. After students have finished a book (or a chapter from a longer fiction or nonfiction text), ask them to hold up their copies of the flashcards that depict the comprehension processes they used most frequently as they approached the end of their reading.

Other variations of this think-aloud flashcard game can be created. For instance, you can divide the class into teams and award points for the one whose representatives present effective think-alouds that represent the thought processes that you hold up randomly, after team members have read the same chapter or book. Or, while reading a common text, you can demonstrate a think-aloud and ask students to identify it by holding up the flashcard that depicts that thinking process. You can also pair students and ask them to perform think-alouds together. They can then evaluate which thinking processes were easy and which ones require more practice before they become automatic during their silent reading.

Peer think-aloud game

This fun-filled lesson is based on the principles of social learning (Vygotsky, 1962) and on scaffolded instruction (Bruner, 1978). In this activity, students are paired (or placed into heterogeneous groups) to perform think-alouds. To begin, the pairs shuffle all the flashcards in Figure 1 that have a 1 on them and then place them face up on a table.

FIGURE 3
Bookmarks to increase the use of strategic thinking when students read independently



Afterward, the first student in the pair reads orally from a text. When the student comes to a point where he or she can perform one of the think-alouds that is reflected on one of the flashcards, the student performs that think-aloud and holds up the flashcard that depicts that thinking process so his or her partner can see it. If the partner agrees with the think-aloud, then the first student receives a point, and the students switch roles. The game continues in this rotation.

After students have mastered the first set of thinking processes have them read three to eight more pages from their books and then repeat the game using the flashcards that are numbered with a 2. The game can be played again using the cards numbered with a 3 after students finish reading a chapter, book, or a large section of text. Conclude this game by asking which processes students need

to practice more and would like for you to reteach before they play the peer think-aloud game again.

Think-aloud bookmarks

This activity is particularly valuable when students read independently or take books home. Think-aloud bookmarks are inserted as markers in students' books. They help students remember to use expert thinking processes while they read and to practice the thought processes that have been modeled in recent days.

To begin this activity, copy Figure 3 and fold the bookmarks vertically in three parts (along the before-, during-, and after- reading columns). After the comprehension processes in the left column have been modeled, have students use the left folded section of Figure 3 as a bookmark while they read silently at school or home. As they read, ask

students to pause and perform each comprehension process represented on the bookmark.

Then, after you have taught the thinking processes on the center bookmark in Figure 3, have each student fold the figure to this section. Ask them to place a check mark after each of the thinking processes listed on it each time they performed them as they read. After you have modeled the think-alouds in the right column of Figure 3, ask students to place check marks after each thinking process in that column that they performed as they ended or after they finished reading a book or chapter. Once students have practiced performing the think-alouds on Figure 3 several times under your supervision, allow them to take a copy of it home. Have them explain the thinking they do before, during, and after they read a book to a caregiver.

These innovative student think-aloud activities have proven to significantly increase students' abilities to use expert readers' thinking processes independently (Block, 2004; Israel, 2002). They also expand the amount of practice students have in thinking like expert readers. The books that students used in the research studies in which the effects of these activities were tested enabled them to practice several comprehension processes before, while, and after they read.

How to assess comprehension through think-alouds

Think-alouds have been used in a wide variety of ways to assess students' comprehension abilities in self-contained classrooms, after-school programs, and tutorial settings. If students are to determine their own reading strengths and weaknesses, the flashcards in Figure 1 or the bookmarks in Figure 3 are exceptionally well suited. To use them for assessment, duplicate Figure 1 or Figure 3 and place the sheets beside a book on the students' desks. Ask students to write the page and paragraph number in which they used each of expert thinking processes from the figures. If you use Figure 3 for this activity, once students finish the book (for grades 1–3) or two chapters within a book (for grades 4–6), ask them to rank their abilities to perform each of these processes by writing their rankings on the blank to the right of each thinking process. Rankings range from 1 (cannot perform an

BOOKS THAT CAN BE USED TO TEACH THINK-ALLOUDS

Think-aloud strategies as you begin to read

Overview the Text

The Library by Sarah Stewart
Confucius: The Golden Rule by Russell Freedman
The Money Tree by Sarah Stewart
Stand Tall, Molly Lou Melon by Patty Lovell

Connect to an Author's Big Ideas

Ramona series by Beverly Cleary
The Frog Princess by Elizabeth Isele
Stories to Solve: Folktales From Around the World by George Shannon

Activate Relevant Knowledge

Cam Jansen Adventure series by David A. Adler
The Funny, Little Woman by Lafcadio Hearn

Put Myself in the Book

Tell Me Your Best Thing by Anna Grossnickle Hines
James and the Giant Peach by Roald Dahl

Think-aloud strategies during reading

Revise Prior Knowledge and Predict

Arthur series by Marc Brown
Amelia Bedelia series by Peggy Parish
Just a Mess by Mercer Mayer
Two Bad Ants by Chris VanAllsburg

Recognize an Author's Writing Style

Rapunzel by Paul O. Zelinsky
Anansi Goes Fishing by Eric A. Kimmel

Determine Word Meanings

Miss Alaineus: A Vocabulary Disaster by Debra Frasier
The Stinky Cheese Man and Other Fairly Stupid Tales by Jon Scieszka

Think-aloud strategies after reading

Notice Novelty in the Text

The Autobiography of Miss Jane Pittman by Ernest J. Gaines
Mrs. Spitzer's Garden by Edith Pattou

Relate the Book to My Life

Winners Never Quit by Nathan Aaseng
Pooh Goes Visiting by A.A. Milne
Tuesday by David Wiesner
Wednesday Surprise by Eve Bunting

Anticipate Use of Knowledge

The Outsiders by S.E. Hinton
The Boy Who Cried Wolf by Tony Ross

expert thinking process without being prompted to do so) to 10 (do not need to refer to the title of the thinking process on the paper because I already use it automatically).

If you use Figure 1 for this self-assessment activity, ask students to circle the flashcard that depicts the thinking process they judged to have most assisted in their comprehension of the material they just read. Then, ask students to turn their copy of Figure 1 over. On the back, have them write a description of this process and how it helped them to comprehend. These rankings and self-assessments can be used to determine individual students' strengths and weaknesses in comprehension.

The flashcards in Figure 1 are also effective for individualized, tutorial assessments in classroom and after-school literacy programs. When students read during one-on-one conferences, hold up a flashcard at a strategic point in the text. Allow the student an opportunity to demonstrate this process by asking her or him to perform a think-aloud. Use as many flashcards as appropriate. This individualized assessment ensures that students employ expert thinking processes while reading.

If students use Figure 3 for self-assessments, make a copy of the figure for each student. Ask them to cut or fold the bookmarks into three separate strips. Decide if students are to use one or more of the bookmarks during the single, independent silent reading experience at which the evaluation is to occur. Begin the evaluation by asking students to review the expert thinking processes depicted on the bookmark(s) to ensure that students know which processes are represented.

Then, have every student fold Figure 3 so that only the left column is visible. Ask them to insert this bookmark after page 3 of a book that they have chosen to read silently and independently. As they read from page 1 to page 3, have students stop and write down the page and paragraph number where they performed the five thinking processes depicted on that bookmark.

To begin the next step in this evaluation, ask students to fold Figure 3 to the center column and insert it in the same book they were reading previously. As students read pages 4–8, they are to write on the blanks to the right of each expert thinking process the pages and paragraph numbers at which they performed one of the four thinking processes depicted on the bookmark. Students are to continue reading until they have experienced all thinking processes depicted on the center column.

The last stage of this activity occurs after students have completed the previous activities. Ask

students to fold Figure 3 so that only the right column shows and insert it after page 9. Ask students to advance the bookmark forward as they read each consecutive page. As they read, have them write the page number and paragraph number at which they performed one of the thinking processes depicted on the right column of Figure 3. When students finish their books, you can assess them by watching their performances of a randomly selected thinking process from Figure 3. Have students turn to the page and paragraph that were written on their bookmarks after that thinking process and perform a think-aloud to relate what they thought to comprehend that portion of the text.

Then, have students turn the bookmark(s) to the blank sides and insert them into the book at the one (to three) appropriate point(s) previously stated. As they read, have students write the name of the thinking process they used to comprehend and a description of the process used to comprehend at specific, self-selected points in the text. After they complete the full book (for grades 1–3) or two chapters of a book (for grades 4–6), ask students to turn the bookmark over and reread the names of all expert thinking processes listed on the front. They write a letter grade of A–F for how well they used each process as they read that book or chapters. Finally, have students describe what they want to learn (or do) to raise their grades in the future.

Another individualized assessment involves think-aloud sticky notes and uses the light bulb images depicted in Figure 3. Make several photocopies of the light bulbs, cut them out, and glue each one on a separate yellow sticky note. Place these sticky notes on edges of pages within a text to remind students to use one of the thinking processes that they have learned at those points in their reading. When students are reading silently, walk around the classroom. When a student comes to a page where you placed a sticky note, ask that student to perform one of the think-alouds. When students write the names of processes they are using on the sticky notes, teachers can keep track of which processes students are using most frequently and proficiently.

The benefits of think-alouds

The purpose of this article was to present 12 thinking processes that significantly increase

students' abilities to think like expert readers. Examples were provided to show how to infuse elementary and middle school programs with highly effective think-alouds. Another goal of this article was to demonstrate game-like lessons and reading assessments that have proven to assist students to use expert thinking processes independently and without teacher prompting. These lessons enable students to practice 12 thinking processes until they can perform them automatically each time they read.

Our intention throughout this article was to enhance teachers' competencies to perform highly effective think-alouds and, through them, to build their students' comprehension, decoding, vocabulary, and fluency. It has been proven that students come to realize that they can read with greater understanding and obtain more information and pleasure from books when a teacher uses think-alouds. As a result, fewer students struggle to comprehend texts at school and home. Students will also experience the benefits of think-alouds long after they leave the classroom. They will likely activate expert readers' thinking processes throughout their lives every time they read to achieve professional or personal goals.

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References

- Adams, M.J. (1991). *Beginning to read: Thinking and learning about print*. Cambridge, MA: MIT Press.
- Baumann, J.F., Jones, L.A., & Seifert-Kessell, N. (1993). Using think alouds to increase children's comprehension monitoring abilities. *The Reading Teacher*, 47, 184-189.
- Block, C.C. (2004). *Teaching comprehension: The comprehension process approach*. Boston: Allyn & Bacon.
- Block, C.C., & Pressley, M. (2002). *Comprehension instruction*. New York: Guilford.
- Boon, K. (2002). *The bears of Hemlock Mountain*. New York: Wright Group/McGraw-Hill.
- Boon, K. (2003). *Frogs*. Chicago: Wright Group/McGraw-Hill.
- Boudart, J. (1999). Strawberry pie in the making. In L. Weber (Ed.), *Best loved children's stories* (p. 39). Lincolnwood, IL: Publications Limited.
- Bruner, J. (1978). *The way children learn*. Cambridge, MA: Harvard University Press.
- Demi, A. (2001). *Gandhi*. New York: Scholastic.
- Duffy, G.G. (2003). *Explaining reading: A resource for teaching concepts, skills, and strategies*. Newark, DE: International Reading Association.
- García, G.E. (2002, December). *Issues surrounding cross-linguistic transfer in bilingual students' reading: A study of Mexican-American fourth graders*. Paper presented at the National Reading Conference, Miami, FL.
- Harris, T.L., & Hodges, R.E. (1995). *The literacy dictionary: The vocabulary of reading and writing*. Newark, DE: International Reading Association.
- Israel, S.E. (2002). *Understanding strategy utilization during reading comprehension: Relations between text type and reading levels using verbal protocols*. Unpublished doctoral dissertation, Teachers College, Ball State University, Muncie, IN.
- Leu, D.J., & Kinzer, C.K. (1995). *Effective literacy instruction* (4th ed.). Upper Saddle River, NJ: Simon & Schuster.
- Morrow, L., & Gambrell, L., & Pressley, M. (2003). *Best practices in literacy instruction* (2nd ed.). New York: Guilford.
- National Commission on Teaching and America's Future. (1998). *What matters most: Teaching for America's Future*. New York: Teachers College Press.
- National Institute of Child Health and Human Development. (2000a). *Report of the National Reading Panel. Teaching children to read: An evidence-based assessment of the scientific research literature on reading and its implications for reading instruction* (NICHD Publication No. 00-4769). Washington, DC: U.S. Government Printing Office.
- National Institute of Child Health and Human Development. (2000b). *Teaching children to read—Summary report of the National Reading Panel*. Washington, DC: U.S. Government Printing Office.
- Oster, L. (2001). Using the think-aloud for reading instruction. *The Reading Teacher*, 55, 65-69.
- Pressley, M., & Afflerbach, P. (1995). *Verbal protocols of reading: The nature of constructively responsive reading*. Hillsdale, NJ: Erlbaum.
- Roberts, M. (2003). *The history of chocolate*. New York: Wright Group/McGraw-Hill.
- Snow, C., Burns, M.S., & Griffin, P. (1998). *Starting out right*. Washington, DC: National Academy Press.
- Snow, C., Burns, M.S., & Griffin, P. (1999). *Preventing reading difficulties in young children*. Washington, DC: National Academy Press.
- Sweet, A., & Snow, C. (2002). *Understanding comprehension: RAND report on comprehension*. Washington, DC: RAND.
- Vygotsky, L. (1962). *Thought and language*. Cambridge: Massachusetts Institute of Technology Press.
- Weir, D.L. (2002). *Let's investigate tree frogs*. Mankato, MN: Creative Paperbacks.